

DEPARTMENT of ENVIRONMENTAL SERVICES
Water Supply & Pollution Control Division - Biology Bureau

LAKE TROPHIC DATA

MORPHOMETRIC:

Lake: MESSER POND	Lake Area (ha): 26.99
Town: NEW LONDON	Maximum depth (m): 7.6
County: Merrimack	Mean depth (m): 2.6
River Basin: Merrimack	Volume (m ³): 704000
Latitude: 43°24'02" N	Relative depth: 1.3
Longitude: 72°00'16" W	Shore configuration: 1.74
Elevation (ft): 1105	Areal water load (m/yr): 12.34
Shore length (m): 3200	Flushing rate (yr ⁻¹): 4.70
Watershed area (ha): 569.8	P retention coeff.: 0.53
% watershed ponded: 0.0	Lake type: natural

BIOLOGICAL:

27 February 1997

16 July 1996

DOM. PHYTOPLANKTON (% TOTAL)	#1	SYNURA 60%	DINOBYRON 50%
	#2	DINOBYRON 40%	RHIZOLENIA 12%
	#3		SYNEDRA 9%
PHYTOPLANKTON ABUNDANCE (units/mL)			
CHLOROPHYLL-A (µg/L)			11.48
DOM. ZOOPLANKTON (% TOTAL)	#1	LRG RND CILIATE SPP 84%	KERATELLA 29%
	#2		KELLICOTTIA 23%
	#3		NAUPLIUS LARVA 16%
ROTIFERS/LITER		7	182
MICROCRUSTACEA/LITER		9	57
ZOOPLANKTON ABUNDANCE (#/L)		106	245
VASCULAR PLANT ABUNDANCE			Common
SECCHI DISK TRANSPARENCY (m)			2.5
BOTTOM DISSOLVED OXYGEN (mg/L)		3.9	0.3
BACTERIA (E. coli, #/100 ml)	#1		
	#2		
	#3		

SUMMER THERMAL STRATIFICATION:

stratified

Depth of thermocline (m):	4.5
Hypolimnion volume (m ³):	4200
Anoxic volume (m ³):	16250

CHEMICAL:

Lake: MESSER POND

Town: NEW LONDON

	27 February 1997		16 July 1996		
DEPTH (m)	2.0	4.0	2.0		5.0
pH (units)	5.9	5.9	6.5		5.9
A.N.C. (Alkalinity)	6.7	7.1	5.0		7.8
NITRATE NITROGEN	0.13	0.12			< 0.05
TOTAL KJELDAHL NITROGEN	0.35	0.46	0.17		0.29
TOTAL PHOSPHORUS	0.014	0.015	0.013		0.022
CONDUCTIVITY (μ mhos/cm)	103.6	129.1	89.2		89.4
APPARENT COLOR (cpu)	38	38	39		70
MAGNESIUM			0.73		
CALCIUM			3.7		
SODIUM			10.8		
POTASSIUM			0.78		
CHLORIDE	22	30	18		19
SULFATE	5	5	4		4
TN : TP	34	39			13
CALCITE SATURATION INDEX					

All results in mg/L unless indicated otherwise

TROPHIC CLASSIFICATION: 1996

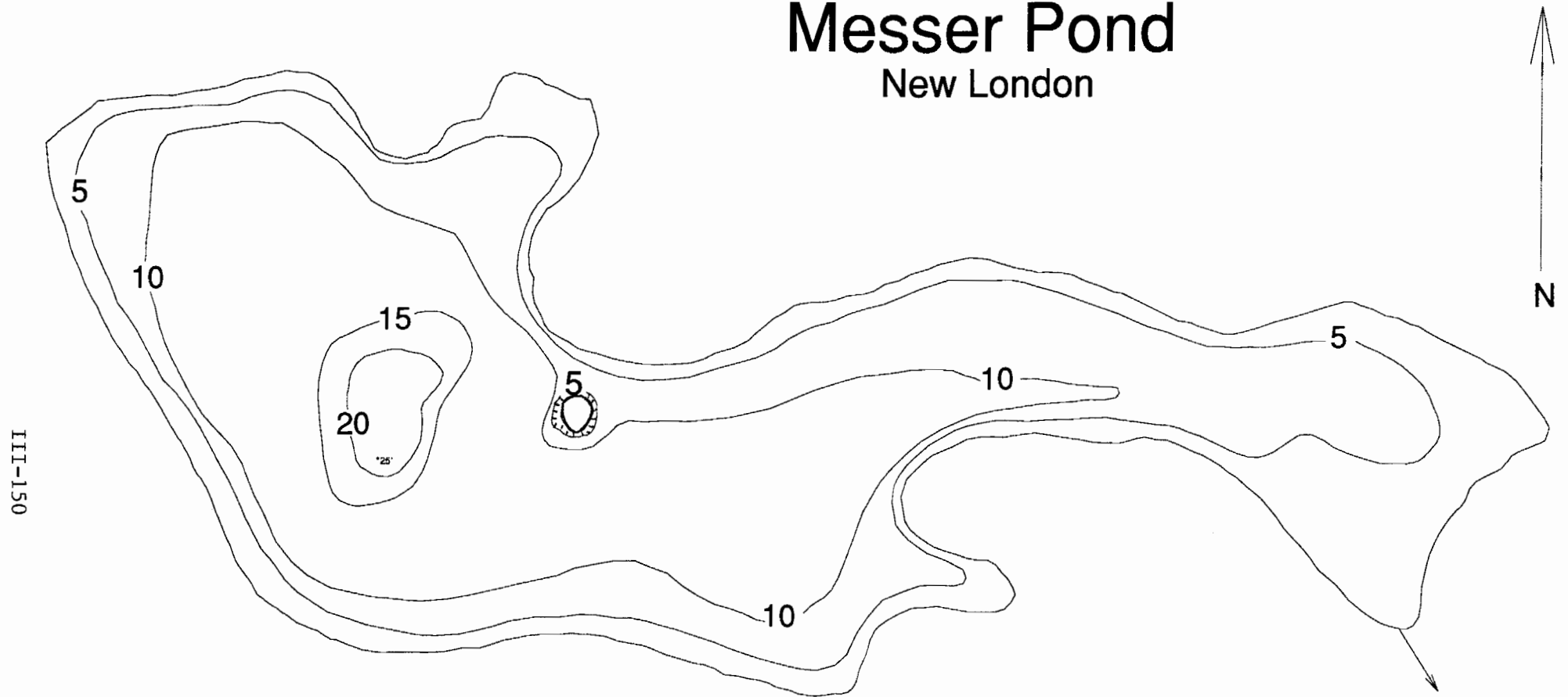
D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
4	3	3	2	12	Meso.

COMMENTS:

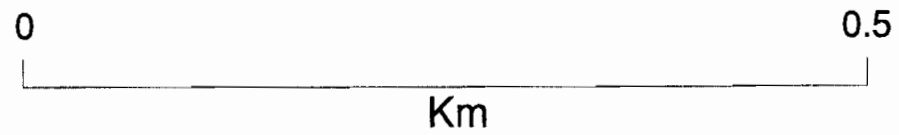
1. Messer Pond was previously surveyed and classified in 1981. There was no change in trophic class but additional trophic points were awarded in 1996 due to a combination of (a) a higher chlorophyll level, (b) a deeper sampling station with bottom dissolved oxygen depletion during stratification (thermal stratification was not present at the shallower depth in 1981), and (c) a revised trophic classification system.
2. Messer Pond became a participant in DES' VLAP program in 1996. Insufficient data is available to discuss trends, but the volunteers also found elevated chlorophyll levels in 1996 compared to 1997 levels when chlorophyll returned to the 3 to 4 mg/m³ range (similar to 1981).
3. The summer, surface sample was apparently collected in a sample bottle containing nitric acid preservative, causing an abnormally low pH reading and abnormally high conductivity and nitrate readings. The summer, surface data presented above is from 8/96 VLAP data.
4. Sodium and chloride values suggest road salt runoff into the pond.

Messer Pond

New London



5 foot depth contours



[illegible]

Messer Pond

New London

New London

N

III-152

0

0.5

Km

[illegible]